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ABSTRACT

The Wisconsin Research and Development Center for Cognitive Learning is proposing the development of an individualized curriculum-instructional program in environmental education. To determine broad national needs in environmental education a survey was conducted of both schools and curriculum coordinators. The survey involved these questions: (1) What is the overall level of interest in a comprehensive environmental education program, and how does this interest relate to what materials are currently available? (2) Should a new environmental program be supplementary or comprehensive, and at which grade level? (3) Are there funds available for purchase of an environmental program, and from what source? The survey indicated current materials are widely used but do not adequately cover certain environmental topics or are not appropriate to several grade levels. The findings also indicated a need for supplementary short-term materials appropriate to several grade levels. Finally, data showed funding available in both science and social studies. Based on the results, a program satisfying the above needs is proposed. (MR)

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A NATIONAL SURVEY OF NEED FOR ENVIRONMENTAL EDUCATIONAL MATERIALS

by

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University of Wisconsin--Madison

March 1976

SE020 740

The mission of the Wisconsin Research and Development Center for Cognitive Learning is to help learners develop as rapidly and effectively as possible their potential as human beings and as contributing members of society. The R&D Center is striving to fulfill this goal by; 1) conducting research to discover more about how children learn, 2) developing improved instructional strategies, processes, and materials for school administrators, teachers, and children, and 3) offering assistance to educators and citizens which will help transfer the outcomes of research and development into practice.

The activities of the Wisconsin R&D Center are organized around one unifying theme: Individually Guided Education. Individually Guided Education (IGE)--the Center's program--is a comprehensive alternative form of schooling. Built from research findings and actual tryouts in school settings, IGE provides an educational experience for each student which takes into account what the student already knows, how rapidly the student learns, and how the student goes about learning. To help schools achieve this goal, IGE provides for changes in the total educational system.

The Wisconsin R&D Center has developed individualized curriculum-instructional programs for elementary reading, prereading, mathematics, and motivation. A program on Environmental Education incorporating concepts from both the natural and social sciences has been proposed for development. The purpose of the program will be to provide children with the basis for exploring the complex relationships of human beings with nature, of human beings with other human beings, and of the partnership which must exist among them.

The broad goals of the proposed program are as follows: 1) to increase the level of knowledge about natural and social systems and the interfaces

between them; 2) to promote a holistic, rather than a fragmented approach to the relationships between man and the environment; 3) to promote examination of values relating to human interrelationships with the ecosystem; and 4) to increase the ability to predict consequences and make sound choices among alternative courses of action.

The program intends to provide individualized multidisciplinary curriculum materials that will not only promote a better understanding of our physical environment, but will also foster a deeper understanding of human beings and their relationship to their environment. Prior to actual full scale development, a multi-faceted needs assessment was initiated by the R&D Center. A review of the relevant literature in the field contributed to the development of the conceptual framework of the program. This framework was submitted for review to scholars in the various disciplines vital to environmental education (see Appendix A). The unanimous opinion of the consulting body was that there is a vital need for materials such as are planned. In addition to such expert opinion, the avilability of environmental education materials for children was examined. This review corroborated the opinions of the consulting body, that in no other environmental program did the design of materials reflect an integrated approach to man and his environment, knowledge of how children learn, and a positive system for providing for individual difference.

A third approach to needs assessment was to determine the broad national need for a comprehensive environmental education curriculum through a national survey of both schools and curriculum coordinators. The surveys to be reported here addressed several main issues, the answers to which were deemed important to the development of an environmental education program by Center project and evaluation staffs as well as by local participating teachers and curriculum personnel. Specifically, the surveys were designed to provide information in

the following three areas: 1) What is the overall level of interest in a comprehensive environmental education program, and how does this interest relate to what materials are currently available? 2) Should a new environmental program be supplementary or comprehensive, and at which grade levels? 3) Are there funds available for purchase of an environmental program, and from what source?

Method

Subjects and design. Since the information desired from practitioners concerned both potential classroom usage as well as funding information, two separate samples were drawn: schools and curriculum coordinators. Both samples were drawn from the files of the Curriculum Information Center (CIC).* In Sample I, a total of 390 schools were drawn. Sampling was random within the constraints that, a) the schools be approximately evenly distributed across the U.S., and b) the schools have enrollments of 300+. Additionally, 130 of the 390 schools were elementary schools (grades 1-5), 130 were middle schools (grades 6-9), and 130 were secondary schools (grades 10-12). Two questionnaires were sent to each school, in an attempt to allow for returns from teachers representing different subject matter areas (i.e., science, social studies, etc.). Respondents within schools were two teachers judged by their principals to be the most active in environmental education. In Sample I, then, there were a total of 780 potential respondents. For Sample II, a total of 390 curriculum coordinators were chosen. Sampling was random with the constraints that a) the districts be approximately evenly distributed across the U.S., and b) the districts have populations of 600+. In addition, 130 each of science coordinators, social studies coordinators, and directors of instruction were chosen.

*The Curriculum Information Center, Denver, Colorado, has one of the largest and most up to date files of schools and districts in the U.S.

Procedure. The procedures for Surveys I and II were identical. All questionnaires were mailed with cover letters which briefly explained the intent of the survey and the nature of the Wisconsin R&D Center. Appendix B contains copies of Survey Forms I and II, with accompanying cover letters. For Survey I, two questionnaires and stamped return envelopes were sent to the principals of the selected schools, who were instructed to pass them on to the two teachers in the school most involved in environmental education. The questionnaires for Survey II were sent directly to the curriculum coordinators sampled. Both surveys were sent out in the second week of April, 1975. After a 10-day waiting period, a brief reminder letter (see Appendix C) was mailed to those who had not yet responded. Following a second 10-day delay, a second questionnaire (or pair of questionnaires) was mailed. Finally, after a final 10-day delay, non-respondents were contacted by telephone to request return of the questionnaire. Those questionnaires not yet received by the end of July were dropped from the analysis.

Sampling, design, and procedures were determined by Center staff with consultation from the following individuals:

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Instrument development. Survey questionnaires were designed to provide information relevant to three major areas of concern. The first objective was to determine the overall level of interest in a comprehensive environmental education program. Additional information related to general level of interest was sought pertaining to the important environmental topics which should be included in a comprehensive program, as well as the adequacy of currently available materials/programs dealing with such topics. The second objective called for information about the preferred structural arrangement (e.g., grade levels, supplmentary/comprehensive, etc.) of an environmental program. The third objective was to determine the source and availability of funds for purchase of new environmental materials/programs.

Where possible, the questions for both questionnaires were identical, in order to allow some global comparisons between the two samples. The instruments went through two tryouts. First, participants in the Association for Individually Guided Education (AIGE) who attended an environmental education presentation reacted to the questionnaire. After revisions, six schools and six curriculum coordinators were chosen from the total population for a more formal tryout of the instruments as well as the procedure. Revisions based on the findings of these tryouts were incorporated into the final versions of the questionnaires.

The following is a listing of the items pertaining to each of the three areas of concern outlined above. The item numbers given are keyed to the teacher questionnaire shown in Appendix B. Item numbers listed in parentheses are keyed to the curriculum coordinator questionnaire (also shown in Appendix B).

Objective 1: Level of interest and content concerns.

1(1). If such an environmental education program [as described on the questionnaire] were available, would you like to use it?

4(3). Each of the [nine] environmental topics listed below is being considered for inclusion in the environmental program

described earlier. Please rank order the environmental topics from most to least important (1=most important; 9=least important).

5(-). Are you teaching this topic? (question was asked for each of nine topics).

6(4). Are there adequate materials available [to teach each of the nine topics]?

7(5). If yes to #6 (#4), are they commercially published or locally produced? (asked for each topic).

Objective 2: Structural concerns (grade level, etc.).

2(2). How would you most likely use such a program (described earlier)?

3a(12a). If you think this program might be used effectively at your grade level(s) check the level(s) below.

3b(12b). For each grade level you checked [in 'a'] how much time do you feel you would/could devote to it?

8(6). The following program [MACOS, SCIS, BSCS, SAPA, etc.] or activities deal with some environmental topics. Are any of these programs or activities used in your school [district]?

8a(-). Where in the curriculum is this program or activity taught?

8b(-). Is this program or activity supplementary or basic?

9(7). Please rate [the content, level of interest for students, arrangement, and ease of use for teachers] all the environmental programs or activities you are currently using according to the following [5 point] scales.

Objective 3: Funding considerations

10(8). Do you believe your school district (or state office in state adoption states) would invest funds now or in the next five years for environmental materials?

11(9). If you believe funds would be available, do you think they would come from science, social studies, both science and social studies, or other budgets?

(10). Would you recommend purchase [of the environmental program described]?

(11). Would you recommend purchase of a less expensive version of the program having more emphasis on print materials, fewer study prints, etc.?

Throughout the development and tryout phases of instrument development, consultation and review were obtained from the following individuals (in addition to Center project and evaluation staffs).

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The design, procedure, and instruments received Office of Management and Budget (OMB) clearance on April 3, 1975. OMB number 51-575031 was assigned to the questionnaires.

Results and Discussion

The return rate for Survey I (Teachers) was 48% (a total of 372 questionnaires were received), and 81% (a total of 316) for Survey II (Curriculum Coordinators). All questionnaires returned prior to the July cut-off point were usable in the analyses. In some cases, however, respondents failed to fill in some questions. Partially-completed questionnaires were included in the analyses, accounting for the slight variation in the Total columns from table to table. Each questionnaire was called for respondent self-categorization of grade level and subject matter responsibilities. A crosstabulation was run on each set of data to determine how accurately respondent self-categorization agreed with the categories of the proposed samples. Tables 1 and 2 show that in several cases respondent self-categorization did not correspond exactly with the categories defined in the proposed samples. The arrows on Table 1 indicate the number and percentage of respondents originally classified as Elementary, Middle, or High who concurred with this classification in their self-categorizations (n=74, Elem; n=87, Middle; n=59 High). Column totals indicate, however, that according to respondent self-categorization, a total of 87 Elementary, 145 Middle, 64 High and 76 Combination (more than 1 of Elementary, Middle, or High checked) were received. Similarly, arrows on Table 2 indicate those responses in which self-classification agreed with that in the proposed sample; and column totals indicate totals received in each category. Data for both surveys were analyzed according to respondent self-categorizations.

Analyses of the data from Survey I and Survey II were run in the following manner. Survey I respondents were stratified by grade level (elementary: grades 1-5; middle: grades 6-9; secondary: grades 10-12, and some combination of these grade spans). Survey II respondents were stratified by subject matter (science, social studies, other discipline). For each set of data (Survey I

Table 1. Comparison of Survey I (Teacher) respondent self-categorization with categories identified in proposed sample

Grade Levels Identified in the Proposed Sample		Grade Levels Indicated by Teacher Self-Categorization: Elementary	Middle	High	Combinations (more than 1 of Elementary, Middle, or High checked)	Total
Elementary	*N	74	47	2	16	139
	**P row	.53	.34	.01	.12	1.00
	***P col	.85	.32	.03	.21	.37
Middle	N	4	87	3	4	98
	P row	.04	.89	.03	.04	1.00
	P col	.05	.60	.05	.05	.26
High	N	9	11	59	56	135
	P row	.07	.08	.44	.41	1.00
	P col	.10	.08	.02	.74	.36
Total	N	87	145	64	76	372
	P row	.23	.39	.17	.20	1.00
	P col	1.00	1.00	1.00	1.00	1.00

*Number
**Percent of row
***Percent of column

Table 2. Comparison of Survey II (Curriculum coordinator) respondent self-categorization with categories identified in proposed sample.

Subject Matter Areas Indicated by Curriculum Coordinator Self Categorization

Subject Matter Areas Identified in the Proposed Sample		Science	Social Studies	Other	Both Science and Social Studies	No Subject Area Indicated	Total
Science	*N	71	0	4	27	7	109
	**P row	.65	0	.04	.25	.06	1.00
	***P col	.88	0	.22	.26	.14	.34
Social Studies	N	3	64	4	14	18	103
	P row	.03	.62	.04	.14	.17	1.00
	P col	.04	.98	.22	.13	.37	.32
Director of Instruction	N	7	1	9	63	24	104
	P row	.07	.01	.09	.61	.23	1.00
	P col	.09	.02	.50	.60	.49	.33
Total	N	81	65	17	104	49	316
	P row	.26	.21	.05	.33	.16	1.00
	P col	1.00	1.00	1.00	1.00	1.00	1.00

*Number
**Percent of row
***Percent of column

and II), crosstabulations of responses were run for the respective breakdowns (grade or subject) on each questionnaire item.

Although respondents to Surveys I and II represented different samples, many questionnaire items were identical. Since the data to be presented are descriptive in nature, each questionnaire item will be discussed in the context of responses from both teachers and curriculum coordinators. Further, discussion of the data will focus on the three major issues already mentioned: 1) Interest level and content concerns, 2) Structural concerns, and 3) Funding considerations.

Several questions on each survey form were developed to assess the feelings of practitioners regarding each of these three issues. Each item pertaining to each of the issues is listed on the accompanying tables of results. Item numbers given are keyed to the teacher questionnaire. Numbers listed in parentheses are keyed to the curriculum coordinator questionnaire.

Interest level and content concerns.

Question 1(1). Table 3 indicates that 56% of the teachers and 40% of the curriculum coordinators said they would use such a program (as described on the questionnaire) if it was available, while an additional 37% (teachers and 51% (coordinators) use the program. Taken together, these data show a very high level of interest in new environmental education materials.

If respondents indicated interest in the briefly-described environmental program, they were asked to answer several questions about the importance of and current use of major environmental topics. The eight topics examined were chosen by project staff as well as a panel of environmental consultants to be central to the complete understanding of ecology and the environment.

Table 3

Question 1(1). "If such an environmental education program [as described on the questionnaire] were available, would you like to use it?"

Teachers		Yes	Maybe	No
Elementary	N	48	22	0
	%	.55	.25	0
Middle	N	80	62	1
	%	.56	.43	.01
High	N	33	28	3
	%	.52	.44	.05
Combination	N	48	25	3
	%	.63	.33	.04
Total	N	209	137	7
	%	.56	.37	.02
Curriculum Coordinators				
Science	N	32	41	8
	%	.40	.51	.10
Social Studies	N	25	34	5
	%	.38	.52	.08
Other	N	52	63	8
	%	.42	.51	.07
Total	N	109	138	21
	%	.41	.51	.08

Question 4(3). First, respondents were asked to rank-order the eight topics; a rank of 1 indicating most importance, higher numbered ranks indicating progressively lesser importance.

Tables 4 (teacher rankings) and 5(coordinator rankings) show the rank orders chosen for each topic. Both tables 4 and 5 show only the percentages of respondents ranking the topics 1 through 4. For example, the topic Basic Ecological Principles was ranked as 1 by 28%, as 2 by 8%, as 3 by 9%, and as 4 by 6%, of elementary teachers. Referring to Table 4, it can be seen that basic ecological principles was overall the topic considered most important. A total of 40% of all teachers gave ecological principles a rank of 1. This represented 28% of the elementary teachers, 47% of middle school teachers, 42% of high school teachers, and 38% of teachers spanning more than one level. No other topic approached the level of interest shown regarding ecological principles. Several other topics grouped themselves at a mid-range of interest. The topics of human values, pollution, resource use, and population dynamics were consistently ranked as more important than the remaining topics. This pattern can be most clearly seen in the section of Table 4 combining the ranks of all teachers. While population dynamics, resource use, pollution, and human values were chosen by a relatively low percentage of respondents as a rank of 1, a consistently high number of respondents gave these topics ranks of 2, 3, and 4. For example, 12% of the combined sample of teachers gave resource use a rank of 2, 11% a rank of 3, and 14% a rank of 4. The remaining topics of preservation, waste disposal, and economic/political/social aspects were judged of lesser importance, with percentages at each rank ranging from approximately 0-10%.

Table 5 shows the rankings of the same eight topics by the curriculum coordinators. As can be seen in this table, a similar pattern emerges. Basic

Table 4. Rank orders of environmental topics by teachers

Question 4(3). "Each of the [nine] environmental topics listed below is being considered for inclusion in the environmental program described earlier. Please rank order the environmental topics from most to least important (1 = most important; 9 = least important)."

Elementary Level Teachers		Rank Orders			
		1	2	3	4
Basic Ecological Principles	N	24	7	8	5
	%	.28	.08	.09	.06
Population Dynamics	N	0	2	4	10
	%	0	.02	.05	.12
Resource Use	N	4	8	12	13
	%	.05	.09	.14	.15
Human Values	N	14	13	2	5
	%	.16	.15	.02	.06
Pollution	N	11	14	8	7
	%	.13	.16	.09	.08
Preservation	N	8	9	11	5
	%	.09	.10	.13	.06
Waste Disposal	N	2	2	6	9
	%	.02	.02	.07	.10
Economic, political and social aspects	N	2	6	6	1
	%	.02	.07	.07	.01
Middle School Teachers					
Basic Ecological Principles	N	67	6	8	7
	%	.47	.04	.06	.05
Population Dynamics	N	8	18	11	18
	%	.06	.13	.08	.13
Resource Use	N	4	16	16	17
	%	.03	.11	.11	.12
Human Values	N	26	26	18	10
	%	.18	.18	.13	.07

Table 4 (continued)

		Rank Orders			
		1	2	3	4
Middle School Teachers (continued)					
Pollution	N	8	28	23	10
	%	.06	.19	.16	.07
Preservation	N	7	7	16	14
	%	.05	.05	.11	.10
Waste Disposal	N	5	5	7	16
	%	.04	.04	.05	.11
Economic, political and social aspects	N	10	10	11	14
	%	.07	.07	.08	.10
High School Teachers					
Basic Ecological Principles	N	27	3	2	1
	%	.43	.05	.03	.02
Population Dynamics	N	3	10	3	6
	%	.05	.16	.05	.09
Resource Use	N	1	10	6	7
	%	.02	.16	.10	.11
Human Values	N	2	14	7	6
	%	.03	.22	.11	.09
Pollution	N	3	6	8	7
	%	.05	.09	.13	.11
Preservation	N	6	3	5	5
	%	.09	.05	.08	.08
Waste Disposal	N	0	4	3	7
	%	0	.06	.05	.11
Economic, political and social aspects	N	6	1	10	5
	%	.09	.02	.16	.08
Combined Level Teachers					
Basic Ecological Principles	N	29	7	4	5
	%	.38	.09	.05	.07

Table 4 (continued)

		Rank Orders			
		1	2	3	4
Combined Level Teachers (continued)					
Population Dynamics	N	7	8	7	6
	%	.09	.11	.09	.08
Resource Use	N	3	11	6	14
	%	.04	.15	.08	.18
Human Values	N	14	10	12	6
	%	.18	.13	.16	.08
Pollution	N	8	11	8	1
	%	.11	.15	.11	.01
Preservation	N	4	6	6	4
	%	.05	.08	.08	.05
Waste Disposal	N	3	3	5	5
	%	.04	.04	.07	.07
Economic, political and social aspects	N	6	7	4	8
	%	.08	.09	.05	.11
All Teachers					
Basic Ecological Principles	N	147	23	22	18
	%	.40	.06	.06	.05
Population Dynamics	N	18	38	25	40
	%	.05	.10	.07	.11
Resource Use	N	12	45	40	51
	%	.03	.12	.11	.14
Human Values	N	56	63	39	27
	%	.15	.17	.11	.07
Pollution	N	30	59	47	25
	%	.08	.16	.13	.07
Preservation	N	25	25	38	28
	%	.07	.07	.10	.08
Waste Disposal	N	10	14	21	37
	%	.03	.04	.06	.10
Economic, political and social aspects	N	24	24	31	28
	%	.07	.07	.08	.08

ecological principles was ranked first in importance by a substantial percentage of coordinators: 44% of science coordinators, 14% of social studies coordinators, 35% of other coordinators (including those responsible for both science and social studies in their districts), and 33% of the total sample of coordinators. However, the topic of human values was ranked 1 by a larger percentage of coordinators than teachers (19% of science coordinators, 39% of social studies coordinators, 29% of other coordinators, and 28% of the total sample). Similarly, the topic of economic/political/social aspects was considered of higher importance by coordinators as compared to teachers, being ranked 1 by 12% of the total sample, 23% of the social studies coordinators, 10% of other coordinators, and 6% of science coordinators. Inspection of Table 5 also reveals that the topics of population dynamics, resource use, and pollution emerged at a mid-range of importance while the remaining topics of waste disposal and preservation were ranked as important by the fewest respondents. Taken together, the data presented in Tables 4 and 5 show that those teachers and coordinators who express the need for an environmental program feel that the program must deal with at least the topics of ecological principles, human values, economic/political/social aspects, population, and resources.

In regard to these eight environmental topics, teachers and coordinators were asked to respond to several questions pertaining to the desirability of teaching each topic as well as whether adequate materials were available.

Questions 4(3), 5(-), 6(4), 7(5). Tables 6 and 7 show the responses of teachers (Table 6) and curriculum coordinators (Table 7) to these questions. Respondents overwhelmingly favored the teaching of each topic. Interestingly, while approximately 50% of all teachers (Table 6) were already teaching each topic (Question 5(-)), about half of all teacher respondents felt adequate materials to teach these topics were unavailable (Question 6(4)). Further, of the

Table 5. Rank orders of environmental topics by coordinators.

Question 4(3). "Each of the [nine] environmental topics listed below is being considered for inclusion in the environmental program described earlier. Please rank order the environmental topics from most to least important (1 = most important; 9 = least important)."

Science Curriculum Coordinators

		Rank Orders			
		1	2	3	4
Basic Ecological Principles	N	36	8	7	4
	%	.44	.10	.09	.05
Population Dynamics	N	6	10	6	15
	%	.07	.12	.07	.19
Resource Use	N	3	12	6	9
	%	.04	.15	.07	.11
Human Values	N	15	22	12	2
	%	.19	.27	.15	.03
Pollution	N	3	4	10	14
	%	.04	.05	.12	.17
Preservation	N	1	3	2	5
	%	.01	.04	.03	.06
Waste Disposal	N	0	2	9	3
	%	0	.03	.11	.04
Economic, political and social aspects	N	5	5	14	13
	%	.06	.06	.17	.16

Social Studies Curriculum Coordinators

Basic Ecological Principles	N	9	7	4	12
	%	.14	.11	.06	.19
Population Dynamics	N	7	3	16	8
	%	.11	.05	.25	.12
Resource Use	N	4	6	5	8
	%	.06	.09	.08	.12
Human Values	N	25	14	4	0
	%	.39	.22	.06	0

Table 5 (continued)

		Rank Orders			
		1	2	3	4
Social Studies Curriculum Coordinators (continued)					
Pollution	N	3	3	5	5
	%	.05	.05	.08	.08
Preservation	N	3	2	3	3
	%	.05	.03	.04	.04
Waste Disposal	N	3	4	2	1
	%	.04	.06	.03	.02
Economic, political and social aspects	N	15	12	8	8
	%	.23	.19	.12	.12
Other Curriculum Coordinators					
Basic Ecological Principles	N	43	10	9	13
	%	.35	.08	.07	.11
Population Dynamics	N	5	13	13	14
	%	.04	.11	.11	.11
Resource Use	N	4	10	19	18
	%	.03	.08	.16	.15
Human Values	N	35	30	15	7
	%	.29	.24	.12	.06
Pollution	N	4	10	10	25
	%	.03	.08	.08	.20
Preservation	N	0	6	7	12
	%	0	.05	.06	.10
Waste Disposal	N	2	5	8	5
	%	.02	.04	.07	.04
Economic, political and social aspects	N	12	21	18	9
	%	.10	.17	.15	.07
All Curriculum Coordinators					
Basic Ecological Principles	N	88	25	20	29
	%	.33	.09	.07	.11

Table 5 (continued)

		Rank Orders			
		1	2	3	4
All Curriculum Coordinators (continued)					
Population Dynamics	N	18	26	35	37
	%	.07	.10	.13	.14
Resource Use	N	11	28	30	35
	%	.04	.10	.11	.13
Human Values	N	75	66	31	9
	%	.28	.25	.12	.03
Pollution	N	10	17	25	44
	%	.04	.06	.09	.16
Preservation	N	4	11	12	20
	%	.02	.04	.05	.07
Waste Disposal	N	5	11	19	9
	%	.02	.04	.07	.03
Economic, political and social aspects	N	32	38	40	30
	%	.12	.14	.15	.11

Table 6. Teachers' responses to proposed instruction on eight environmental topics.

Questions		4(3) "Should this topic be taught?" Yes	4(3) "Should this topic be taught?" No	5(-) "Are you teaching this topic?" Yes	5(-) "Are you teaching this topic?" No	6(4) "Are there adequate materials available?" Yes	6(4) "Are there adequate materials available?" No	7(5) "If yes to 6(4), are they:" Commercially published	7(5) "If yes to 6(4), are they:" Locally produced	7(5) "If yes to 6(4), are they:" Both
Elementary Level Teachers										
Basic Ecological Principles	N	66	1	46	21	18	46	13	1	7
	%	.76	.01	.53	.24	.21	.53	.15	.01	.08
Population Dynamics	N	44	22	13	48	5	45	4	1	1
	%	.51	.25	.15	.55	.06	.52	.05	.01	.01
Resource Use	N	68	1	46	19	24	36	14	2	7
	%	.78	.01	.53	.22	.28	.41	.16	.02	.08
Human Values	N	65	4	31	35	8	49	7	2	0
	%	.75	.05	.36	.40	.09	.56	.08	.02	0
Pollution	N	70	0	61	9	31	35	17	1	12
	%	.80	0	.70	.10	.36	.40	.20	.01	.14
Preservation	N	69	1	44	23	20	40	14	0	6
	%	.79	.01	.51	.26	.23	.46	.16	0	.07
Waste Disposal	N	64	3	34	30	15	41	9	2	5
	%	.74	.03	.39	.35	.17	.47	.10	.02	.06
Economic, political and social aspects	N	48	12	14	44	5	44	6	1	1
	%	.55	.14	.16	.51	.06	.51	.07	.01	.01
Middle School Level Teachers										
Basic Ecological Principles	N	139	1	108	31	58	74	32	6	20
	%	.97	.01	.75	.22	.40	.51	.24	.05	.15
Population Dynamics	N	126	14	73	64	30	95	25	7	3
	%	.88	.10	.51	.44	.21	.66	.19	.05	.02

Table 6 (continued)

		Question 4(3)		Question 5(-)		Question 6(4)		Question 7(5)		
		Yes	No	Yes	No	Yes	No	Commercially published	Locally produced	Both
Middle School Level Teachers (continued)										
Resource Use	N	136	0	86	46	53	64	38	5	9
	%	.94	0	.60	.32	.37	.44	.29	.04	.07
Human Values	N	133	3	79	51	27	89	12	10	6
	%	.92	.02	.55	.35	.19	.62	.09	.07	.05
Pollution	N	136	1	120	15	82	43	50	6	24
	%	.94	.01	.83	.10	.57	.30	.38	.05	.18
Preservation	N	134	4	79	53	51	65	37	6	9
	%	.93	.03	.55	.37	.35	.45	.28	.05	.07
Waste Disposal	N	131	7	84	49	43	73	22	9	11
	%	.91	.05	.58	.34	.30	.51	.17	.07	.08
Economic, political and social aspects	N	115	17	49	75	21	84	12	3	6
	%	.80	.12	.34	.52	.15	.59	.09	.02	.05
High School Level Teachers										
Basic Ecological Principles	N	58	0	43	16	30	26	22	1	7
	%	.91	0	.67	.25	.47	.41	.34	.02	.11
Population Dynamics	N	57	1	39	20	31	23	24	1	6
	%	.89	.02	.61	.31	.48	.36	.38	.02	.09
Resource Use	N	57	0	35	23	20	32	16	1	4
	%	.89	0	.55	.36	.31	.50	.25	.02	.06
Human Values	N	55	1	32	22	12	39	10	2	1
	%	.86	.02	.50	.34	.19	.61	.16	.03	.02
Pollution	N	57	0	43	13	35	20	21	4	8
	%	.89	0	.67	.20	.55	.31	.33	.06	.13

Table 6 (continued)

		Question 4(3)		Question 5(-)		Question 6(4)		Question 7(5)		
		Yes	No	Yes	No	Yes	No	Commercially published	Locally produced	Both
Preservation	N	57	0	36	20	23	32	15	2	7
	%	.89	0	.56	.31	.36	.50	.24	.03	.11
Waste Disposal	N	53	2	28	27	18	31	11	2	3
	%	.83	.03	.44	.42	.28	.48	.17	.03	.05
Economic, political and social aspects	N	50	3	24	30	8	37	6	1	2
	%	.78	.05	.38	.47	.13	.58	.09	.02	.03
						Combined Level Teachers				
Basic Ecological Principles	N	71	1	52	19	25	42	21	2	10
	%	.93	.01	.68	.25	.33	.55	.28	.03	.13
Population Dynamics	N	64	7	37	33	20	45	14	2	6
	%	.84	.09	.49	.43	.26	.59	.18	.03	.08
Resource Use	N	68	3	45	26	18	48	17	3	4
	%	.89	.04	.59	.34	.24	.63	.22	.04	.05
Human Values	N	68	4	46	25	19	48	17	2	6
	%	.89	.05	.61	.33	.25	.63	.22	.03	.08
Pollution	N	71	0	58	12	42	23	32	1	11
	%	.93	0	.76	.16	.55	.30	.42	.01	.14
Preservation	N	67	3	38	31	18	47	12	2	8
	%	.88	.04	.50	.41	.24	.62	.16	.03	.11
Waste Disposal	N	69	1	34	34	14	48	13	1	3
	%	.91	.01	.45	.45	.18	.63	.17	.01	.04
Economic, political and social aspects	N	67	3	29	36	14	41	11	2	6
	%	.88	.04	.38	.47	.18	.54	.14	.03	.08

Table o (continued)

		Question 4(3)		Question 5(-)		Question 6(4)		Question 7(5)		
		Yes	No	Yes	No	Yes	No	Commercially published	Locally produced	Both
						All Teachers				
Basic Ecological Principles	N	334	3	249	87	131	188	94	11	45
	%	.90	.01	.67	.23	.35	.51	.25	.03	.12
Population Dynamics	N	291	44	162	165	86	208	71	11	17
	%	.78	.12	.44	.44	.23	.56	.19	.03	.05
Resource Use	N	329	4	212	114	115	180	89	12	25
	%	.89	.01	.57	.31	.31	.49	.24	.03	.07
Human Values	N	321	12	188	133	66	225	49	17	13
	%	.87	.03	.51	.36	.18	.61	.13	.05	.04
Pollution	N	334	1	282	49	190	121	129	12	56
	%	.90	.00	.76	.13	.51	.33	.35	.03	.15
Preservation	N	327	8	197	127	112	184	83	11	30
	%	.88	.02	.53	.34	.30	.50	.22	.03	.08
Waste Disposal	N	317	13	180	140	90	193	60	14	22
	%	.85	.04	.49	.38	.24	.52	.16	.04	.06
Economic, political and social aspects	N	280	35	116	185	48	206	37	8	15
	%	.75	.09	.31	.50	.13	.56	.10	.02	.04

Table 7. Coordinators' responses to proposed instruction on eight environmental topics.

Questions		4(3) "Should this topic be taught?"		6(4) "Are there adequate materials available?"		7(5) "If yes to 6(4), are they:"		
		Yes	No	Yes	No	Commercially published	Locally produced	Both
Science Curriculum Coordinators								
Basic Ecological Principles	N	72	0	50	15	41	1	11
	%	.89	0	.62	.19	.51	.01	.14
Population Dynamics	N	65	5	34	28	28	2	4
	%	.80	.06	.42	.35	.35	.02	.05
Resource Use	N	70	0	37	26	27	0	10
	%	.86	0	.46	.32	.33	0	.12
Human Values	N	72	0	23	41	11	4	9
	%	.89	0	.28	.51	.14	.05	.11
Pollution	N	72	0	52	13	39	0	13
	%	.89	0	.64	.16	.48	0	.16
Preservation	N	67	4	33	26	22	2	9
	%	.83	.05	.41	.32	.27	.02	.11
Waste Disposal	N	70	0	29	32	22	2	7
	%	.86 0	0	.36	.40	.27	.02	.09
Economic, political and social aspects	N	61	3	17	41	13	1	4
	%	.75	.04	.21	.51	.16	.01	.05
Social Studies Curriculum Coordinators								
Basic Ecological Principles	N	53	4	17	27	18	0	0
	%	.82	.06	.26	.42	.28	0	0
Population Dynamics	N	57	0	23	26	19	2	3
	%	.88	0	.35	.40	.29	.03	.05

Table 7 (continued)

		Question 4(3)		Question 6(4)		Question 7(5)		
		Yes	No	Yes	No	Commercially published	Locally produced	Both
Social Studies Curriculum Coordinators (continued)								
Resource Use	N	55	2	14	30	12	1	2
	%	.85	.03	.22	.46	.18	.02	.03
Human Values	N	58	0	12	36	11	4	1
	%	.89	0	.18	.55	.17	.06	.02
Pollution	N	55	1	37	11	30	1	5
	%	.85	.02	.57	.17	.46	.02	.08
Preservation	N	53	4	20	21	17	1	2
	%	.82	.06	.31	.32	.26	.02	.03
Waste Disposal	N	54	1	18	26	12	1	2
	%	.83	.02	.28	.40	.18	.02	.03
Economic, political and social aspects	N	50	0	10	32	8	0	3
	%	.77	0	.15	.49	.12	0	.05
Other Curriculum Coordinators								
Basic Ecological Principles	N	111	3	61	42	49	4	12
	%	.90	.02	.50	.34	.40	.03	.10
Population Dynamics	N	102	8	38	57	34	2	8
	%	.83	.07	.31	.46	.28	.02	.07
Resource Use	N	112	0	43	58	37	0	10
	%	.91	0	.35	.47	.30	0	.08
Human Values	N	110	3	30	73	22	4	6
	%	.89	.02	.24	.59	.18	.03	.05
Pollution	N	111	0	74	30	52	3	19
	%	.90	0	.60	.24	.42	.02	.15

Table 7 (continued)

		Question 4(3)		Question 6(4)		Question 7(5)		
		Yes	No	Yes	No	Commercially published	Locally produced	Both
Other Curriculum Coordinators (continued)								
Preservation	N	110	2	57	46	44	3	12
	%	.89	.02	.46	.37	.36	.02	.10
Waste Disposal	N	107	4	39	62	34	2	8
	%	.87	.03	.32	.50	.28	.02	.07
Economic, political and social aspects	N	91	5	22	68	16	1	5
	%	.74	.04	.18	.55	.13	.01	.04
All Curriculum Coordinators								
Basic Ecological Principles	N	236	7	128	84	108	5	23
	%	.88	.03	.48	.31	.40	.02	.09
Population Dynamics	N	224	13	95	111	81	6	15
	%	.83	.05	.35	.41	.30	.02	.06
Resource Use	N	237	2	94	114	76	1	22
	%	.88	.01	.35	.42	.28	0	.08
Human Values	N	240	3	65	150	44	12	16
	%	.89	.01	.24	.56	.16	.04	.06
Pollution	N	238	1	163	54	121	4	37
	%	.88	0	.61	.20	.45	.01	.14
Preservation	N	230	10	110	93	83	6	23
	%	.86	.04	.41	.35	.31	.02	.09
Waste Disposal	N	231	5	86	120	68	5	17
	%	.86	.02	.32	.45	.25	.02	.06
Economic, political and social aspects	N	202	8	49	141	37	2	12
	%	.75	.03	.18	.52	.14	.01	.04

materials in use, most tended to be commercially-produced (Question 7(5)). Table 7 shows that approximately 80% of all coordinators felt that each of the eight topics should be taught, while a substantial number felt available materials are not adequate. Coupled with the high interest shown in teaching these topics, these results indicate the need for more (and better) commercially-available materials dealing with these major environmental topics.

Structural Concerns

Several items were developed to obtain practitioner feedback regarding the most optimal structure for the Center's proposed program. Questions pertaining to this objective dealt with issues of whether the program would be most useful at particular grades, as a supplementary or a comprehensive program, etc. Information was also sought concerning the use and adequacy of environmental programs already available.

Question 2(2). Respondents were asked to estimate the manner in which a new environmental program would be incorporated into the present school program. Table 8 shows the results pertaining to this question. As can be seen in this table, 76% of the teachers and 66% of the coordinators stated that the program would be most useful as a supplement to other materials. This result, coupled with the finding that ongoing environmental activities are primarily supplementary in nature, is strong evidence that any newly developed program would have the broadest utility if supplementary to other science curriculum materials.

Question 3a(12a), 3b (12b). Table 9 shows respondent estimations of the grade levels and the length of time (less than a semester through a full school year) for which an environmental education program might be used effectively. The portions of Table 9 showing responses of all teachers and all coordinators illustrate the trend in responses for teachers of each grade level and coordinators of each specialty. For both teachers and coordinators, there was an in-

Table 8. Estimations of the type of program (supplementary/basic) most likely to be used.

Question: "How would you most likely use such a program: as a replacement for existing programs; as a supplement to existing programs; other; not sure."

		Replacement	Supplement	Other	Not sure	More than one response
Teachers						
Elementary	N	9	54	1	6	0
	%	.10	.62	.01	.07	0
Middle	N	5	119	3	16	0
	%	.04	.83	.02	.11	0
High	N	3	53	3	2	0
	%	.05	.83	.05	.03	0
Combination	N	3	57	5	8	0
	%	.04	.75	.07	.11	0
Total	N	20	283	12	32	0
	%	.05	.76	.03	.09	0
Curriculum Coordinators						
Science	N	5	51	3	12	0
	%	.06	.63	.04	.15	0
Social Studies	N	3	47	0	8	0
	%	.05	.72	0	.12	0
Other	N	4	80	3	24	1
	%	.03	.65	.02	.20	.01
Total	N	12	178	6	44	1
	%	.05	.66	.02	.17	.00

Table 9. Respondent estimates of grade levels and time constraints at which a new environmental program might be most effective.

Question 3a(12a) "If you think this program might be used effectively at your grade level(s) check the level(s) and answer (b)."
3b(12b) "For each grade level you checked, how much time do you feel you would/could devote to it?"

Grade Level		Yes	Less than a semester	A semester	A full school year
			Elementary School Teachers		
K-5	N	18	8	5	4
	%	.20	.09	.06	.05
6-9	N	4	1	1	1
	%	.05	.01	.02	.02
10-12	N	3	3	0	0
	%	.03	.03	0	0
All	N	1	0	0	1
	%	.01	0	0	.01
Not sure	N	0	-	-	-
	%	0	--	--	--
			Middle School Teachers		
K-5	N	4	3	1	0
	%	.03	.02	.01	0
6-9	N	52	30	15	6
	%	.36	.21	.10	.05
10-12	N	3	1	1	0
	%	.02	.01	.01	0
All	N	1	1	1	0
	%	.01	.01	.01	0
Not sure	N	3	-	-	-
	%	.02	--	--	--
			High School Teachers		
K-5	N	0	0	0	0
	%	0	0	0	0
6-9	N	1	1	1	0
	%	.02	.01	.02	0
10-2	N	41	15	20	5
	%	.65	.23	.31	.06

Table 9 (continued)

Grade Level		Yes	Less than a semester	A semester	A full school year
High School Teachers (continued)					
All	N	3	3	0	1
	%	.05	.05	0	.0[illegible]
Not sure	N	3	-	-	-
	%	.05	—	—	—
Combined Grade Level Teachers					
K-5	N	11	6	1	3
	%	.15	.09	.02	.05
6-9	N	18	11	4	4
	%	.24	.17	.05	.05
10-12	N	38	13	15	9
	%	.50	.17	.20	.12
All	N	10	5	4	1
	%	.13	.07	.05	.01
Not sure	N	2	-	-	-
	%	.03	--	—	--
All Teachers					
K-5	N	33	17	8	8
	%	.09	.05	.02	.02
6-9	N	76	42	21	12
	%	.20	.11	.06	.03
10-12	N	86	31	36	15
	%	.23	.08	.10	.04
All	N	15	9	5	3
	%	.04	.02	.01	.08
Not sure	N	8	-	-	-
	%	.02	--	--	--

Table 9 (continued)

Question 3a (12a) "At what grade level(s) do you think this program might be used effectively? Check the level(s) below and answer (b)."
3b (12b) "For each grade level you checked, how much time do you feel should be devoted to it?"

Grade Level		Yes	Less than a semester	A semester	A full school year
			Science Curriculum Coordinators		
K-5	N	20	20	3	4
	%	.25	.25	.03	.04
6-9	N	26	17	10	6
	%	.32	.20	.10	.07
10-12	N	29	8	16	11
	%	.36	.10	.20	.13
All	N	19	9	2	4
	%	.23	.11	.02	.05
Not sure	N	0	-	-	-
	%	0	--	--	--
			Social Studies Curriculum Coordinators		
K-5	N	11	8	3	1
	%	.17	.13	.04	.01
6-9	N	18	10	10	0
	%	.27	.15	.15	0
10-12	N	20	6	14	2
	%	.31	.09	.21	.04
All	N	13	6	4	0
	%	.20	.09	.06	0
Not sure	N	3	-	-	-
	%	.05	--	--	--
			Other Curriculum Coordinators		
K-5	N	43	30	7	10
	%	.35	.24	.06	.08
6-9	N	56	31	20	8
	%	.46	.25	.16	.07
10-12	N	36	16	14	8
	%	.29	.13	.11	.07

Table 9 (continued)

Grade Level		Yes	Less than a semester	A semester	A full school year
			Other Curriculum Coordinators (continued)		
All	N	29	14	4	6
	%	.24	.11	.03	.05
Not sure	N	2	-	-	-
	%	.02	--	--	--
			All Curriculum Coordinators		
K-5	N	74	58	13	14
	%	.28	.22	.05	.05
6-9	N	99	57	40	14
	%	.37	.21	.15	.05
10-12	N	85	30	43	21
	%	.32	.11	.16	.08
All	N	61	29	10	10
	%	.23	.11	.04	.04
Not sure	N	5	-	-	-
	%	.02	--	--	--

Table 10. Type and placement of environmental programs currently in use.

Question 8(6) "The following programs or activities deal with some environmental topics. Are any of these programs or activities used in your school? (Check all that apply and answer (a) and (b) for each one checked.)"

			8a(-) "Where in the curriculum is this program or activity taught?"				8b(-) "Is this program or activity:"		
		Using	science	social studies	other	more than one response	supplementary	basic	more than one response
Elementary School Teachers									
Government-sponsored programs	N	2	6	3	0	0	2	4	1
	%	.03	.07	.03	0	0	.03	.04	.01
Publishers' programs	N	3	4	4	1	0	2	5	0
	%	.03	.05	.04	.01	0	.02	.06	0
Locally-developed materials	N	15	16	4	0	9	16	4	1
	%	.17	.18	.05	0	.10	.18	.05	.01
Outdoor education	N	12	14	0	2	4	18	2	0
	%	.14	.16	0	.02	.05	.21	.02	0
Conservation education	N	16	15	1	1	8	18	2	1
	%	.18	.17	.01	.01	.09	.21	.02	.01
Environmentally-oriented field trips	N	19	21	5	3	6	27	3	0
	%	.22	.24	.06	.03	.07	.31	.03	0
School camp or farm	N	4	5	1	1	1	6	0	0
	%	.05	.06	.01	.01	.01	.07	0	0
Middle School Teachers									
Government-sponsored programs	N	7	13	2	0	0	5	9	0
	%	.05	.09	.01	0	0	.03	.06	0

Table 10 (continued)

		Using	8a(-) "Where in the curriculum is this program or activity taught?"				8b(-) "Is this program or activity:"		
			science	social studies	other	more than one response	supplementary	basic	more than one response
Middle School Teachers (continued)									
Publishers' programs	N	6	11	1	1	0	6	6	0
	%	.04	.08	.01	.01	0	.04	.04	0
Locally-developed materials	N	39	47	3	3	11	37	16	5
	%	.27	.33	.02	.02	.08	.26	.11	.03
Outdoor education	N	20	28	0	2	10	24	13	0
	%	.14	.19	0	.01	.07	.17	.09	0
Conservation education	N	28	33	1	2	6	26	14	1
		.19	.23	.01	.01	.04	.18	.10	.01
Environmentally-oriented field trips	N	26	29	4	4	7	30	8	1
	%	.18	.20	.03	.03	.05	.21	.06	.01
School camp or farm	N	11	10	1	3	4	13	3	0
	%	.08	.07	.01	.02	.03	.09	.02	0
High School Teachers									
Government-sponsored programs	N	3	6	1	0	0	2	4	0
	%	.04	.10	0	.01	0	.03	.06	0
Publishers' programs	N	1	2	0	0	0	2	1	0
	%	.01	.03	0	0	0	.02	.01	0
Locally-developed materials	N	13	14	2	0	7	17	2	2
	%	.20	.22	.03	0	.11	.27	.03	.03
Outdoor education	N	10	19	0	1	1	17	2	2
	%	.16	.30	0	.02	.02	.27	.03	.03

Table 10 (continued)

		Using	8a(-) "Where in the curriculum is this program or activity taught?" science	social studies	other	more than one response	8b(-) "Is this program or activity:" supplementary	basic	more than one response
High School Teachers (continued)									
Conservation education	N	8	17	2	0	2	13	4	2
	%	.13	.27	.03	0	.03	.20	.06	.03
Environmentally-oriented field trips	N	14	23	2	0	3	19	8	1
	%	.22	.36	.03	0	.05	.30	.13	.02
School camp or farm	N	2	2	1	1	0	2	4	1
	%	.03	.03	.02	.02	0	.03	.06	.02
Combined Level Teachers									
Government-sponsored programs%	N	3	9	1	0	0	4	5	0
	%	.04	.12	.02	0	.01	.05	.07	0
Publishers' programs	N	2	5	1	0	1	3	3	0
	%	.02	.06	.01	0	.01	.04	.03	0
Locally-developed materials	N	21	27	3	2	8	18	14	1
	%	.28	.36	.04	.03	.11	.24	.18	.01
Outdoor education	N	16	18	1	3	9	19	9	0
	%	.21	.24	.01	.04	.12	.25	.12	0
Conservation education	N	12	18	1	2	11	18	12	0
	%	.16	.24	.01	.03	.14	.24	.16	0
Environmentally-oriented field trips	N	21	25	3	5	9	23	8	0
	%	.28	.33	.04	.07	.12	.30	.11	0
School camp or farm	N	6	3	0	7	2	6	5	0
	%	.08	.04	0	.09	.03	.08	.07	0

Table 10 (continued)

		Using	8a(-) "Where in the curriculum is this program or activity taught?" science	social studies	other	more than one response	8b(-) "Is this program or activity:" supplementary	basic	more than one response
						All Teachers			
Government-sponsored programs	N	15	34	7	1	1	13	22	1
	%	.04	.09	.02	0	0	.04	.06	0
Publishers' programs	N	11	22	5	2	1	12	14	1
	%	.03	.06	.01	.01	0	.03	.04	0
Locally-developed materials	N	88	104	12	5	35	88	36	9
	%	.24	.28	.03	.01	.09	.24	.10	.02
Outdoor education	N	58	79	1	8	24	78	26	2
	%	.16	.21	0	.02	.06	.21	.07	.01
Conservation education	N	64	83	5	5	27	75	32	4
	%	.17	.22	.01	.01	.07	.20	.09	.01
Environmentally-oriented field trips	N	80	98	14	12	25	99	27	2
	%	.22	.26	.04	.03	.07	.27	.07	.01
School camp or farm	N	23	20	3	12	7	27	12	1
	%	.06	.05	.01	.03	.02	.07	.03	0

Table 10 (continued)

Question "The following programs or activities deal with some environmental topics. Are any of these programs or activities used in your district or state? Check all that apply."

		Curriculum Coordinators by Subject Matter Area			
		Science	Social Studies	Other	Total
Government-sponsored programs	N	28	14	38	80
	%	.34	.22	.31	.30
Publishers' programs	N	13	11	22	45
	%	.15	.17	.17	.17
Locally-developed materials	N	50	34	73	157
	%	.62	.52	.59	.58
Outdoor education	N	46	30	68	144
	%	.57	.46	.55	.53
Conservation education	N	27	23	57	107
	%	.33	.35	.46	.40
Environmentally-oriented field trips	N	56	31	78	165
	%	.69	.48	.63	.61
School camp or farm	N	26	14	26	66
	%	.32	.22	.21	.25

crease in emphasis on environmental education at about the middle school level. The percentage of teachers responding that an environmental program might be used effectively ranged from about 5-15% for grades K through 6. At 7th grade through 12th grade, about 20% of the teachers felt an environmental program would be effective. The results were similar for coordinators.

Additionally, a majority of both teachers and coordinators felt that an environmental program ought to be taught for less than a semester. This is not surprising in light of earlier results indicating a more favorable response to a supplementary program. As can be seen in Table 9, there was some increase in the percentages of respondents indicating the program should be taught for a full semester throughout the middle school levels.

Question 8(6), 8a(-), 8b(-). Respondents were asked to identify the environmental programs currently in use. As Table 10 shows, few teachers or coordinators were using commercially developed materials. A high percentage (24%) of all teachers are using locally-developed materials, 16% are using outdoor education, 22% use environmentally-oriented field trips, and 17% are using conservation education as the vehicle for environmental education. Few are using either government-sponsored programs (4%) or publishers' programs (3%). The survey of curriculum coordinators reveals essentially the same result; a heavy emphasis on non-commercial programs with relatively lower use of either government-sponsored or publishers' programs. Table 10 further shows the curricular area in which environmental programs are currently placed. As can be seen from this table, the majority of programs are taught in the science area, and are supplementary in nature.

Question 9(7). Respondents were also asked to rate the currently-used environmental programs as to their content, arrangement, level of interest for students, and ease of use for teachers. Table 11 reveals that the currently

Table 11

Ratings of Currently Used Environmental Programs

Question 9(7): "Please rate all the environmental programs or activities you are currently using according to the following scales."

		very inadequate 1	2	average 3	4	very adequate 5
Elementary Level Teachers						
Content of the program(s)	N	9	20	21	9	4
	%	.10	.23	.24	.10	.05
Arrangement or presentation of materials	N	5	13	31	7	7
	%	.06	.15	.36	.08	.08
Level of interest for students	N	4	5	31	12	12
	%	.05	.06	.36	.14	.14
Ease of use for teachers	N	12	12	26	4	9
		.14	.14	.30	.05	.10
Middle School Teachers						
Content of the program(s)	N	26	15	55	19	5
	%	.20	.11	.42	.15	.04
Arrangement or presentation of materials	N	15	19	56	21	10
	%	.11	.15	.43	.16	.08
Level of interest for students	N	7	14	49	34	17
	%	.05	.11	.37	.26	.13
Ease of use for teachers	N	18	23	51	18	8
	%	.14	.18	.39	.14	.06
High School Level Teachers						
Content of the program(s)	N	10	5	28	9	5
	%	.16	.08	.44	.14	.08
Arrangement or presentation of materials	N	7	10	23	13	3
		.11	.16	.36	.20	.05
Level of interest for students	N	2	10	22	15	5
	%	.03	.16	.35	.23	.08
Ease of use for teachers	N	5	12	24	10	3
	%	.07	.19	.38	.16	.05

		very inadequate 1	2	average 3	4	very adequate 5
Combined Level Teachers						
Content of the program(s)	N	3	18	31	14	3
	%	.04	.24	.41	.18	.04
Arrangement or presentation of materials	N	6	13	31	15	4
	%	.08	.17	.41	.20	.05
Level of interest for students	N	1	14	30	19	5
	%	.01	.18	.40	.25	.07
Ease of use for teachers	N	9	17	30	7	6
	%	.12	.22	.40	.09	.08
Content of the program(s)	N	50	60	139	53	17
	%	.13	.16	.37	.14	.05
Arrangement or presentation of materials	N	34	56	144	60	24
	%	.09	.15	.39	.16	.06
Level of interest for students	N	15	43	133	86	40
	%	.04	.12	.36	.23	.11
Ease of use for teachers	N	45	65	136	39	28
	%	.12	.18	.37	.11	.08
Science Curriculum Coordinators						
Content of the program(s)	N	2	11	42	15	1
	%	.02	.14	.52	.19	.01
Arrangement or presentation of materials	N	2	15	38	12	3
	%	.02	.19	.47	.15	.04
Level of interest for students	N	0	10	36	16	8
	%	0	.12	.44	.20	.10
Ease of use for teachers	N	5	15	35	13	1
	%	.06	.19	.43	.16	.01
Social Studies Curriculum Coordinators						
Content of the program(s)	N	5	10	23	6	4
	%	.08	.15	.35	.09	.06
Arrangement or presentation of materials	N	4	11	19	9	3
	%	.06	.17	.29	.14	.05

		very inadequate 1	2	average 3	4	very adequate 5
Social Studies Curriculum Coordinators (continued)						
Level of interest for students	N	1	9	19	12	4
	%	.02	.14	.29	.18	.06
Ease of use for teachers	N	3	11	20	9	2
	%	.05	.17	.31	.14	.03
Other Curriculum Coordinators						
Content of the program(s)	N	9	18	57	16	4
	%	.07	.15	.46	.13	.03
Arrangement or presentation of materials	N	9	17	58	18	2
	%	.07	.14	.47	.15	.02
Level of interest for students	N	5	16	49	30	3
	%	.04	.13	.40	.24	.02
Ease of use for teachers	N	6	20	62	11	4
	%	.05	.16	.50	.09	.03
Total Curriculum Coordinators						
Content of the program(s)	N	16	39	122	37	9
	%	.06	.15	.45	.14	.03
Arrangement or presentation of materials	N	15	43	115	39	8
	%	.06	.16	.43	.15	.03
Level of interest for students	N	6	35	104	58	15
	%	.02	.13	.39	.22	.06
Ease of use for teachers	N	14	46	117	33	7
	%	.05	.17	.43	.12	.03

used environmental education programs are rated by the majority of both samples of respondents as only average in terms of content (38% of all teachers, 45% of all coordinators), arrangement or presentation (39% teachers, 43% coordinators), level of interest for students (36% teachers, 39% coordinators), and ease of use for teachers (37% teachers, 44% coordinators). Similar trends can be seen in Table 11 for teachers at each level and for coordinators of each subject matter specialization. These results indicate a need for better materials structured on the needs of practitioners in terms of content, arrangement, interest level, and ease of use. Further, as results discussed earlier indicate, such new materials need include a heavier emphasis on central environmental topics such as basic ecological principles, human values, social/economic/political aspects, etc.

In sum, the results reported in this section clearly indicate that environmental materials currently used are not highly rated by practitioners. Additionally, the heavy emphasis on locally-developed or managed programs may further indicate dissatisfaction with available materials. These results, taken together with the finding of an overall preference for supplementary, short term (less than a semester) materials indicate that new environmental materials responsive to these concerns might be enthusiastically received (especially at the middle school level).

Funding Considerations.

The final set of items on each questionnaire dealt with the issue of sources and availability of funds for purchase of a new environmental program such as that proposed by the Center. Estimated costs of such a program were given in the questionnaire.

Question 10(8). Table 12 presents the teachers and coordinators feelings of how they would invest funds in a new environmental program. The largest percent-

Table 12

Estimates of Probable Investment in Environmental Materials

Question 10(8): "Would you invest funds now or in the next five years for environmental materials: only for basic materials; only for supplemental materials; both for basic and supplementary materials; no chance."

Teachers		Basic	Supplemental	Both	No Chance	More than one response
Elementary	N	13	25	19	10	1
	%	.15	.29	.22	.12	.01
Middle	N	24	44	43	19	1
	%	.17	.30	.30	.13	.01
High	N	14	14	22	6	0
	%	.22	.22	.34	.09	0
Combination	N	12	20	26	7	1
	%	.16	.26	.34	.09	.01
Total	N	63	103	110	42	3
	%	.17	.28	.30	.11	.01
Curriculum Instructors						
Science	N	6	16	44	2	0
	%	.07	.20	.54	.02	0
Social Studies	N	4	22	19	3	0
	%	.06	.34	.29	.05	0
Other	N	7	30	62	5	1
	%	.06	.24	.50	.04	.01
Total	N	17	68	125	11	1
	%	.06	.25	.46	.04	0

Table 13

Source of Funds Available for Investment
in Environmental Materials

Question 11(1): " If you have available funds would they come from: the the science budget; the social studies budget; both the science and the social studies budgets; other budgets."

		Science	Social Studies	Both	Other	More than one response
Teachers						
Elementary	N	14	0	25	15	1
	%	.16	0	.29	.17	.01
Middle	N	56	4	27	22	14
	%	.39	.03	.19	.15	.10
High	N	24	0	13	8	8
	%	.38	0	.20	.13	.13
Combination	N	22	1	19	14	8
	%	.29	.01	.25	.18	.11
Total	N	116	5	84	59	31
	%	.31	.01	.23	.16	.08
Curriculum Coordinators						
Subject Matter						
Science	N	32	0	14	9	15
	%	.40	0	.17	.11	.19
Social Studies	N	1	9	26	6	5
	%	.02	.14	.40	.09	.08
Other	N	12	1	41	27	19
	%	.10	.01	.33	.22	.15
Total	N	45	10	81	42	39
	%	.17	.04	.30	.16	.15

age of both teachers (30%) and coordinators (47%) felt that an investment in environmental materials that can be used as either basic or supplementary would be the most desirable. The next highest percentage of respondents (28% teachers, 26% coordinators) replied that an investment in supplementary materials was probable in the near future. These results indicate that the potential market for supplementary materials or materials which are usable either as a basic program or a supplementary program is good.

Question 11(9). Table 13 identifies the potential budgets from which funds for new environmental materials could be forthcoming. Teachers at all levels showed a high expectation (31%) that funds from the science budgets could be used for environmental materials. A significiant proportion of teacher respondents also indicated funds from both the science and social studies budgets, or from other budget sources might be used. Interestingly, few respondents felt that the social studies budget was a viable source of such funds. A similar pattern can be seen in the responses of the curriculum coordinators.

Question (10),(11). Coordinator respondents only were asked to indicate whether or not they would recommend purchase of the program proposed by the Center and described on the questionnaire. Table 14 shows the opinion of respondents regarding a description of the specific program under development at the Wisconsin R & D Center. Overall, respondents showed greater interest in the full essential program than in either the optional materials or the less-expensive versions. However, a large percentage of respondents responded "maybe" to these questions, probably indicating that final decisions would have to be made in light of more specific information.

Summary.

In sum, the results of the two surveys discussed above reveal several

Table 14

Question (10) "The following are some estimated costs for the environmental education program outlined earlier. Would you recommend purchase? (Check grade ranges that apply.)"

		Essential Items			Optional Items		
		Yes	No	Maybe	Yes	No	Maybe
Science Curriculum Coordinators							
K-2	N	5	7	19	1	9	13
	%	.06	.09	.23	.01	.11	.16
3-4	N	10	4	19	1	7	17
	%	.12	.05	.23	.01	.09	.21
5-6	N	8	3	22	2	4	18
	%	.10	.04	.27	.02	.05	.22
Middle	N	11	6	24	3	7	24
	%	.13	.07	.30	.04	.09	.30
High	N	18	6	31	7	6	31
	%	.22	.07	.38	.09	.07	.38
Social Studies Curriculum Coordinators							
K-2	N	4	3	15	2	5	11
	%	.06	.05	.23	.03	.08	.17
3-4	N	6	2	15	3	4	13
	%	.09	.03	.23	.05	.06	.20

Question (11) "If you answered "no" or "maybe," would you recommend purchase of a less expensive version of the program (having more emphasis on print materials, fewer study prints, etc.)? Note: this version would probably average about a dollar less than the costs quoted above."

		Essential Items			Optional Items		
		Yes	No	Maybe	Yes	No	Maybe
Science Curriculum Coordinators							
K-2	N	6	7	13	1	7	11
	%	.07	.09	.16	.01	.09	.14
3-4	N	6	6	10	2	6	11
	%	.07	.07	.12	.02	.07	.14
5-6	N	5	5	12	1	5	12
	%	.06	.06	.15	.01	.06	.15
Middle	N	4	7	18	1	6	19
	%	.05	.09	.22	.01	.07	.23
High	N	7	6	22	3	6	23
	%	.09	.07	.27	.04	.07	.20
Social Studies Curriculum Coordinators							
K-2	N	4	4	9	3	4	8
	%	.06	.06	.14	.05	.06	.12
3-4	N	4	4	9	3	4	9
	%	.06	.06	.14	.05	.06	.14

Question (10) (continued)

		Essential Items			Optional Items		
		Yes	No	Maybe	Yes	No	Maybe
Social Studies Curriculum Coordinators (cont'd)							
5-6	N	8	2	17	4	2	17
	%	.12	.03	.26	.06	.03	.26
Middle	N	11	3	18	4	5	19
	%	.17	.05	.28	.06	.08	.29
High	N	11	3	25	7	6	24
		.17	.05	.38	.11	.09	.37
Other Curriculum Coordinators							
K-2	N	14	28	39	5	21	32
	%	.11	.19	.32	.04	.17	.26
3-4	N	16	21	42	6	19	35
	%	.13	.17	.34	.05	.15	.28
5-6	N	22	16	43	8	17	37
	%	.18	.13	.35	.07	.14	.30
Middle	N	20	9	40	7	13	36
	%	.16	.07	.33	.06	.11	.29
High	N	15	13	35	7	15	30
	%	.12	.11	.28	.06	.12	.24

Question (11) (continued)

		Essential Items			Optional Items		
		Yes	No	Maybe	Yes	No	Maybe
Social Studies Curriculum Coordinators (cont'd)							
5-6	N	2	6	9	2	5	10
	%	.03	.09	.14	.03	.08	.15
Middle	N	8	6	11	3	7	12
	%	.12	.09	.17	.05	.11	.18
High	N	7	6	17	3	7	16
		.11	.09	.26	.05	.11	.25
Other Curriculum Coordinators							
K-2	N	12	20	28	9	19	23
	%	.10	.16	.23	.07	.15	.19
3-4	N	10	16	33	8	17	27
	%	.08	.13	.27	.07	.14	.22
5-6	N	11	13	33	8	14	29
	%	.09	.11	.27	.07	.11	.24
Middle	N	12	8	30	10	8	27
	%	.10	.07	.24	.08	.07	.22
High	N	8	8	31	5	8	27
	%	.07	.07	.25	.04	.07	.22

Question (10) (continued)

		Essential Items			Optional Items		
		Yes	No	Maybe	Yes	No	Maybe
All Curriculum Coordinators							
K-2	N	23	33	73	8	35	56
	%	.09	.12	.27	.03	.13	.21
3-4	N	32	27	76	10	30	65
	%	.12	.10	.28	.04	.11	.24
5-6	N	38	21	82	14	23	72
	%	.14	.08	.30	.05	.09	.27
Middle	N	42	18	82	14	25	79
		.16	.07	.30	.05	.09	.29
High	N	44	22	91	21	27	85
	%	.16	.08	.34	.08	.10	.32
Total	N	179	121	404	67	140	357
	%	13	.09	.30	.05	.10	.27

Question (11) (continued)

		Essential Items			Optional Items		
		Yes	No	Maybe	Yes	No	Maybe
All Curriculum Coordinators							
K-2	N	22	31	50	13	30	42
	%	.08	.12	.19	.05	.11	.16
3-4	N	20	26	52	13	27	47
	%	.07	.10	.19	.05	.10	.17
5-6	N	18	24	54	11	24	51
	%	.07	.09	.20	.04	.09	.19
Middle	N	24	21	59	14	21	58
		.09	.08	.22	.05	.08	.22
High	N	22	20	70	11	21	66
	%	.08	.07	.26	.05	.08	.25
Total	N	106	122	285	62	123	264
	%	.08	.09	.21	.05	.09	.19

general trends. Respondents indicated a relatively high level of use of currently available environmental materials or programs. Despite the extensive use of such materials, however, respondents indicated that available materials are overall only of average quality. Current materials do not adequately deal with certain important environmental topics, and are not appropriate to several grade levels. As a result, a considerable amount of local development of materials has occurred to bridge the gaps between what is needed and what is available.

Further, the findings indicated that most respondents felt that supplementary, short term (less than one year) materials appropriate to several grade levels (especially middle school) would have the most utility. Finally, respondents clearly indicated that funds were available for purchase of environmental materials from both the science and social studies budgets.

Overall, the findings indicate a need for new supplementary environmental materials appropriate to a wide range of grades (middle school levels having the greatest need) and covering a variety of topics not now adequately covered in available materials. The response to descriptions of the Center's proposed program was favorable, since it would present a comprehensive view of the environment appropriate to many ages/grades. Based on the results of these surveys, a program such as is proposed would be enthusiastically received by the field, especially if structured as a supplement to either science or social studies.

Appendix A. Review panel for the conceptual framework developed for the proposed environmental education program.

Dr. Kenneth Boulding, Professor of Economics, University of Colorado

Dr. O. L. Davis, Jr., Professor of Curriculum and Instruction, University of Texas-Austin

Dr. Richard Netting, Professor of Anthropology, University of Arizona

Dr. Eugene Odom, Professor and Director of Institute of Ecology, University of Georgia

Dr. Howard Odom, Professor of Ecological Sciences, University of Florida

Dr. Robert L. Smith, Professor of Ecology, West Virginia University

Dr. William Stapp, Professor of Environmental Education, University of Michigan

Dr. James Trosko, Professor of Human Development, Michigan State University School of Medicine

Dr. Andrew Vayda, Professor of Anthropology, Rutgers University

APPENDIX B

Teacher and Coordinator Questionnaire

the Wisconsin Research and Development Center for Cognitive Learning

the University of Wisconsin · 1025 West Johnson Street · Madison, Wisconsin 53706 · (608)262-4901

April 21, 1975

Dear Curriculum Coordinator:

The Wisconsin Research and Development Center for Cognitive Learning (University of Wisconsin-Madison), a nonprofit educational center, is in the process of developing an environmental education curriculum for grades K-12. Recognized scholars in environmentally-related disciplines have helped conceptualize and define the scope and content of the program.

The enclosed questionnaire is being sent to a selected group of curriculum coordinators throughout the country (a total of 380).

We would appreciate your giving immediate attention to the questionnaire as this information is vital to the development of our program. In return for your help, we will be happy to supply the results of our questionnaire to you.

We look forward to receiving the questionnaire in the enclosed self-addressed stamped envelope. Thank you for your time.

Sincerely,

Jan Jeter

Jan Jeter, Ph.D.
Director
Environmental Education

JJ:js

Enclosures

P.S. The numbers in the upper right hand corner of the questionnaire enable us to identify the size of your district.

APPENDIX B (Continued)

OMB 51-575031
expires 9/19/75

Wisconsin Research and Development Center for Cognitive Learning
1025 West Johnson Street
Madison, Wisconsin 53706

Environmental Education Questionnaire

For what subject matter area(s) and grade level(s) are you responsible?

Subject Matter Areas	Grade Levels		
___ science	___ K	___ 5	___ 9
___ social studies	___ 1	___ 6	___ 10
___ other	___ 2	___ 7	___ 11
	___ 3	___ 8	___ 12
	___ 4		___ all

An environmental education program is being designed by the Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin. The program will integrate the natural and social sciences, utilizing a systems approach to the understanding of human beings in their delicate relationship with the environment.

Nine key concepts will provide the content of the program: energy, human being, cycle, technology, population, culture, cultural institution, values, and ecosystem. These concepts will reappear at increasingly complex levels throughout the K-12 program. Many pressing environmental topics (e.g., pollution, resource use, basic ecological principles, population dynamics, values, waste disposal, etc.) will be used to illustrate the nine key concepts of the program.

A multimedia approach is planned and five units will be included in each level of the program (K-2, 3-4, 5-6, middle school, high school). In Unit 1 specific natural ecosystems (e.g., the forest, the pond) will be examined and basic natural laws (ecological principles) will be introduced. In Unit 2 the human being is studied in a simple ecosystem (as a hunter-gatherer) and interrelationships between human beings, their culture, and these natural laws are studied. Then, in Unit 3, human beings are studied in a more complex ecosystem (agricultural) and in Unit 4 the child is studying human beings in modern industrial ecosystems. Unit 5, utilizing simulations, is based on the following issue: How can human beings live in greater harmony with the established flow of energy which drives and unifies the ecosystems of the world?

1. If such an environmental education program were available, would you like to use it? (Note: Workshops and/or inservice training will be provided.)

   Yes___ No___ Maybe___

   If yes or maybe, please answer questions 2-14. If no, please indicate your reasons why not in question 14 and return the questionnaire in the enclosed envelope.

2. How would you most likely use such a program?

   ___as a replacement for existing programs

   or

   ___as a supplement to existing programs

   ___Other: Please state

   not sure

2

Each of the environmental topics listed below is being considered for inclusion in the environmental program described earlier. Your answers to questions 3, 4, and 5 will assist us in our decisions as to which topics will be used. Upon completion of questions 3, 4, and 5 please rank order the environmental topics from most to least important (1 = most important; 9 = least important). Mark your rankings in the spaces provided in the left-hand margin.

Rank	Environmental Topics	3. Should this topic be taught?		4. Are there adequate materials available?		5. If yes to #4, are they	
		Yes	No	Yes	No	Commercially Published	Locally Produced
___	Basic ecological principles (e.g., natural laws)	___	___	___	___	___	___
___	Population dynamics (e.g., overpopulation, density, demography, birth rates, death rates)	___	___	___	___	___	___
___	Renewable and non-renewable resource use (e.g., timber, coal, oil and natural gas)	___	___	___	___	___	___
___	Human values and their effect on the environment (e.g., profit vs. conservation, industrial development vs. a marsh)	___	___	___	___	___	___
___	Land, water, and air pollution	___	___	___	___	___	___
___	Preservation of wilderness areas and endangered species	___	___	___	___	___	___
___	Waste disposal and recycling	___	___	___	___	___	___
___	Economic, political and social aspects of environmental problems (e.g., citizen involvement, decision-making, environmental law, environmental impact studies)	___	___	___	___	___	___
___	Other: Please add to our list						

Please go back and rank.

APPENDIX B (Continued)

3

6. The following programs or activities deal with some environmental topics. Are any of these programs or activities used in your district or state? Check all that apply.

Government-sponsored Programs:

___ Man: A Course of Study (MACOS)

___ Science Curriculum Improvement Study (SCIS)

___ Elementary Science Study (ESS)

___ Science: A Process Approach (SAPA)

___ Biological Science Curriculum Study (BSCS--Green Version)

___ Earth Science Curriculum Project (ESCP)

___ National Environmental Education Development (NEED)

Publishers' Programs:

___ Energy, Matter, & Change (Scott, Foresman, & Co.)

___ Interaction Science Curriculum Project (Rand McNally)

___ Earth Science: Patterns in Our Environment (Prentice-Hall)

___ Concepts and Values (Harcourt, Brace)

Activities:

___ locally-developed materials

___ outdoor education

___ conservation education

___ environmentally-oriented field trips

___ school camp or farm

Others: Please List

_____

_____

_____

APPENDIX B (Continued)

4

7. Please rate all the environmental programs or activities currently in use in your district or state according to the following scales.

Content of the program(s):

very inadequate		average		very adequate
1___	2___	3___	4___	5___

Arrangement or presentation of materials:

very inadequate		average		very adequate
1___	2___	3___	4___	5___

Level of interest for students:

very inadequate		average		very adequate
1___	2___	3___	4___	5___

Ease of use for teachers:

very inadequate		average		very adequate
1___	2___	3___	4___	5___

8. Would you invest funds now or in the next five years for environmental materials?

___only for basic materials

___only for supplemental materials

___both for basic and supplementary materials

___no chance

9. If you have available funds would they come from:

___the science budget

___the social studies budget

___both the science and the social studies budgets

___other budgets

APPENDIX B (Continued)

5

The following are some estimated costs** for the environmental education program outlined earlier.

	Essential Items		Optional Items
	Basic Kit	Workbooks	
	Contains 5 units, each with booklets, teacher guide, study prints	Contains all student workbooks needed for 5 units for one year (consumable: to be replaced yearly)	Contains items for each of 5 units (games, manipulatives, filmstrips)
Primary (K-2)	$5/pupil	$3/pupil/yr.	$11/pupil
Elementary (3-6)	$4/pupil	$3/pupil/yr.	$8.50/pupil
Secondary (7-12)	$4/pupil	$3/pupil/yr.	$8.50/pupil

**Workshops and/or inservice training is to be provided without extra charge..

10. Would you recommend purchase? (Check grade ranges that apply.)

	Essential Items			Optional Items		
	Yes	No	Maybe	Yes	No	Maybe
K-2	___	___	___	___	___	___
3-4	___	___	___	___	___	___
5-6	___	___	___	___	___	___
Middle School	___	___	___	___	___	___
High School	___	___	___	___	___	___

11. If you answered "no" or "maybe," would you recommend purchase of a less expensive version of the program (having more emphasis on print materials, fewer study prints, etc.)? Note: This version would probably average about a dollar less than the costs quoted above.

	Essential Items			Optional Items		
	Yes	No	Maybe	Yes	No	Maybe
K-2	___	___	___	___	___	___
3-4	___	___	___	___	___	___
5-6	___	___	___	___	___	___
Middle School	___	___	___	___	___	___
High School	___	___	___	___	___	___

APPENDIX B (Continued)

12. (a) At what grade level(s) do you think this program might be used effectively? Check the level(s) below and answer (b).

(b) For each grade level you checked, how much time do you feel should be devoted to it?

Grade Level(s)	Less Than a Semester	A Semester	A Full School Year
___ K	___	___	___
___ 1	___	___	___
___ 2	___	___	___
___ 3	___	___	___
___ 4	___	___	___
___ 5	___	___	___
___ 6	___	___	___
___ 7	___	___	___
___ 8	___	___	___
___ 9	___	___	___
___ 10	___	___	___
___ 11	___	___	___
___ 12	___	___	___
___ all	___	___	___
___ not sure	___	___	___

13. What additional aspects of this program would you like to see built in?

14. Any comments?

APPENDIX B (Continued)

the Wisconsin Research and Development Center for Cognitive Learning

the University of Wisconsin · 1025 West Johnson Street · Madison, Wisconsin 53706 · (608)262 - 4901

April 21, 1975

Dear Principal:

The Wisconsin Research and Development Center for Cognitive Learning (University of Wisconsin-Madison), a nonprofit educational center, is in the process of developing an environmental education curriculum for grades K-12. Recognized scholars in environmentally-related disciplines have helped conceptualize and define the scope and content of the program.

The enclosed questionnaire is being sent to a selected group of schools throughout the country (a total of 380). Would you please forward the two enclosed questionnaires to the teachers in your school having the most interest or involvement in environmental education?

We would appreciate your giving immediate attention to the questionnaires as the information is vital to our producing a program responsive to the needs of the classroom. In return for your help, we will be happy to supply you with the results.

We look forward to receiving the questionnaires in the enclosed self-addressed stamped envelopes. Thank you for your time.

Sincerely,

Jan Jeter

Jan Jeter, Ph.D.
Director
Environmental Education

JJ:js

Enclosures

P.S. The numbers in the upper right hand corner help us to identify your school as an elementary, middle, or high school.

PLEASE NOTE: We have made every attempt to route this questionnaire to the teachers most interested in or involved in environmental education. If you feel you are not the appropriate person to fill this out, please help us out by passing this questionnaire on to someone more appropriate. Thank you.

Wisconsin Research and Development Center for Cognitive Learning
1025 West Johnson Street
Madison, Wisconsin 53706

OMB 51-575031
expires 9/19/75

*Environmental Education Questionnaire

For what subject matter area(s) and grade level(s) are you responsible?

Subject Matter Areas	Grade Levels
_____ science	___ K ___ 5 ___ 9
_____ social studies	___ 1 ___ 6 ___ 10
_____ other	___ 2 ___ 7 ___ 11
	___ 3 ___ 8 ___ 12
	___ 4

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1. If such an environmental education program were available, would you like to use it? (Note: Workshops and/or inservice training will be provided.)

   Yes___ No___ Maybe___

   If yes or maybe, please answer questions 2-13. If no, please indicate your reasons why not in question 13 and return the questionnaire in the enclosed envelope.

2. How would you most likely use such a program?

   ___as a replacement for existing programs

   or

   ___as a supplement to existing programs

   ___Other: Please state

2

3. (a) If you think this program might be used effectively at your grade level(s) check the level(s) below and answer (b)

(b) For each grade level you checked, how much time do you feel you would/could devote to it?

Grade Levels	Less Than A Semester	A Semester	A Full School Year
___ K	___	___	___
___ 1	___	___	___
___ 2	___	___	___
___ 3	___	___	___
___ 4	___	___	___
___ 5	___	___	___
___ 6	___	___	___
___ 7	___	___	___
___ 8	___	___	___
___ 9	___	___	___
___ 10	___	___	___
___ 11	___	___	___
___ 12	___	___	___
___ all	___	___	___
___ not sure	___	___	___

APPENDIX B (Continued) 3

Each of the environmental topics listed below is being considered for inclusion in the environmental program described earlier. Your answers to questions 4, 5, 6, and 7 will assist us in our decisions as to which topics will be used. Upon completion of questions 4, 5, 6, and 7 please rank order the environmental topics from most to least important (1 = most important; 9 = least important). Mark your rankings in the spaces provided in the left-hand margin.

Rank	Environmental Topics	4. Should this topic be taught?		5. Are you teaching this topic?		6. Are there adequate materials available?		7. If yes to #6, are they	
		Yes	No	Yes	No	Yes	No	Commercially Published	Locally Produced
___	Basic ecological principles (e.g., natural laws)	___	___	___	___	___	___	___	___
___	Population dynamics (e.g., overpopulation, density, demography, birth rates, death rates)	___	___	___	___	___	___	___	___
___	Renewable and non-renewable resource use (e.g., timber, coal, oil and natural gas)	___	___	___	___	___	___	___	___
___	Human values and their effect on the environment (e.g., profit vs. conservation, industrial vs. a marsh)	___	___	___	___	___	___	___	___
___	Land, water, and air pollution	___	___	___	___	___	___	___	___
___	Preservation of wilderness areas and endangered species	___	___	___	___	___	___	___	___
___	Waste disposal and recycling	___	___	___	___	___	___	___	___
___	Economic, political and social aspects of environmental problems (e.g., citizen involvement, decision-making, environmental law, environmental impact studies)	___	___	___	___	___	___	___	___
	Others: Please add								

8. The following programs or activities deal with some environmental topics. Are any of these programs or activities used in your school? (Check all that apply and answer (a) and (b) for each one checked.)

	(a) Where in the curriculum is this program or activity taught?			(b) Is this program or activity:	
	science	social studies	other	supplementary	basic
Government-sponsored Programs:					
___ Man: A Course of Study (MACOS)	___	___	___	___	___
___ Science Curriculum Improvement Study (SCIS)	___	___	___	___	___
___ Elementary Science Study (ESS)	___	___	___	___	___
___ Science: A Process Approach (SAPA)	___	___	___	___	___
___ Biological Science Curriculum Study (BSCS--Green Version)	___	___	___	___	___
___ Earth Science Curriculum Project (ESCP)	___	___	___	___	___
___ National Environmental Education Development (NEED)	___	___	___	___	___
Publishers' Programs:					
___ Energy, Matter, & Change (Scott, Foresman, & Co.)	___	___	___	___	___
___ Interaction Science Curriculum Project (Rand McNally)	___	___	___	___	___
___ Earth Science: Patterns in Our Environment (Prentice-Hall)	___	___	___	___	___
___ Concepts and Values (Harcourt, Brace)	___	___	___	___	___
Activities:					
___ locally-developed materials	___	___	___	___	___
___ outdoor education	___	___	___	___	___
___ conservation education	___	___	___	___	___
___ environmentally-oriented field trips	___	___	___	___	___
___ school camp or farm	___	___	___	___	___
Other: Please List					
_____	___	___	___	___	___
_____	___	___	___	___	___
_____	___	___	___	___	___

APPENDIX B (Continued)

9. Please rate all the environmental programs or activities you are currently using according to the following scales?

Content of the program(s):

very inadequate		average		very adequate
1___	2___	3___	4___	5___

Arrangement or presentation of materials:

very inadequate		average		very adequate
1___	2___	3___	4___	5___

Level of interest for students:

very inadequate		average		very adequate
1___	2___	3___	4___	5___

Ease of use for teachers:

very inadequate		average		very adequate
1___	2___	3___	4___	5___

10. Do you believe your school district (or state office in state adoption states) would invest funds now or in the next five years for environmental materials?

___only for basic materials

___only for supplemental materials

___both for basic and supplementary materials

___no chance

11. If you believe funds would be available, do you think they would come from:

___the science budget

___the social studies budget

___both the sciences and social studies budgets

___other budgets

12. What additional aspects of the program would you like to see built in?

13. Any comments?

APPENDIX C

Reminder Letter
Wisconsin Research and Development Center
for Cognitive Learning
1025 W. Johnson Street
Madison, WI 53706

Please help us to develop a truly unique and responsive Environmental Education program by filling out and returning the questionnaire you received from us about two weeks ago. Thank you very much. (If you have already returned it, please excuse this reminder.)

Jane Foster
Director
Environmental Education